

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference 701.208	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/12339	International filing date (day/month/year) 05.11.2003	Priority date (day/month/year) 08.11.2002
International Patent Classification (IPC) or both national classification and IPC E04B9/12		
Applicant ATENA S.R.L.		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 3 sheets.

- This report contains indications relating to the following items:
 - ☒ Basis of the opinion
 - ☐ Priority
 - ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - ☐ Lack of unity of invention
 - ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - ☐ Certain documents cited
 - ☐ Certain defects in the international application
 - ☐ Certain observations on the international application

Date of submission of the demand 27.05.2004	Date of completion of this report 06.12.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Demeester, J Telephone No. +31 70 340-1052 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP 03/12339

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

2, 3 as originally filed
1, 1a received on 13.09.2004 with letter of 01.09.2004

Claims, Numbers

2, 3 as originally filed
1 received on 13.09.2004 with letter of 01.09.2004

Drawings, Sheets

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer-readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-3
	No: Claims	
Inventive step (IS)	Yes: Claims	1-3
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-3
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Reference is made to the following document/s/:

D1: US-A-3 093 221 (PURDY BURL O) 11 June 1963 (1963-06-11)

D3: US-A-4 648 230 (MIEYAL DAVID F ET AL) 10 March 1987 (1987-03-10)

2.1. Document D1, which is considered to represent the most relevant state of the art, discloses (cf. fig. 4) an inverted T-beam with an appendix (25) from which the subject-matter of claim 1 differs, because:

- A. the second free part (30) of the appendix (25) of D1 does not comprise a "cutout-tooth" as defined in lines 7-9 of claim 1. The second free part (30) of the appendix (25) of D1 comprises only a bend (33).
- B. the appendix (25) of D1 has an inner portion (cf. fig. 4, broadest part of appendix 25) and an outer portion (cf. fig. 4, smallest part of appendix 25). However, said inner portion of D1 does not have an edge which is suitable for the retention of the outer portion of the appendix in the aperture (35, 36) of another beam.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

2.2. The problem to be solved by the present invention may be regarded as providing a connection which is more reliable and easier to unlock:

The "cutout-tooth" of present claim 1 provides clearly a better locking of the appendix in an aperture than the bend (33) of the appendix (25) of D1.

Moreover, the free end (32) of the outer portion of the appendix (25) of D1 has a limited length and is oriented to the inner portion (26) of the appendix. Due to the "cutout tooth", the appendix of the application (cf. application, fig. 4) can have a long free end at the outer portion (14) of the appendix (10), said free end being oriented away from the inner portion (12) of the appendix (10). This results into to a lever, which is easy to handle in order to unlock the appendix (10).

The skilled man would not consider replacing the bend (33) of the appendix (25) of D1 by a "cutout-tooth" for the following reasons:

- a "cutout-tooth" is a more complex solution than a bend,
- the "cutout-tooth" has specific advantages in combination with the appendix (cf. "lever-effect" described above) and is thus a special selection out of several possibilities,

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- none of the cited documents hints to an appendix with a V-shape wherein the outer portion of the appendix comprises such a "cutout-tooth".

Remark: D3 (fig. 1), discloses an appendix (22) with a "cutout-tooth" (44). However, this "cutout tooth" (44) is not installed on the outer portion of a V-shaped appendix and thus does not result in the same lever-effect (cf. above) as the appendix of present claim 1.

Therefore, the solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT).

2.3. Claims 2 and 3 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

(J. Demeester)

IMPROVED COUPLING ELEMENT FOR INVERTED T BEAMS

The present invention relates to an improved coupling element for inverted T beams.

Structural elements for false ceilings are known consisting of beams of
5 inverted T cross-section provided at their ends with hooks, which are either formed directly on the central web of the T beam or are in the form of inserts which are constructed separately and applied to each beam section during its construction.

Said beams are also provided in their web with cut-outs in which to
10 engage the coupling element of a beam perpendicular to it, to form a lattice structure which is generally suspended from the ceiling, usually by steel cables or tie bars, to functionally support with its horizontal flanges those panels and staves or the like necessary to form the false ceiling.

A known type of beam comprises an element which is subjected to
15 pressing to form an elastic strip in which, by cutting and plastic deformation, at least one tooth is defined having its abutment surface facing the beam, to form an insertion connection with the cut-out provided in the web of the beam.

A drawback of this coupling element is a certain laboriousness both in
constructing the strip and in disengaging the strip from the cut-out in which it
20 is engaged.

US-A-3093221 discloses a coupling element for the end of an inverted T-beam which comprises two portions of different height, the outer portion having a lesser height and being V-shaped.

An object of the invention is to provide an improved coupling element
25 which enables the appendix to be easily and quickly engaged with and disengaged from the cut-out.

This and further objects which will be apparent from the ensuing description are attained according to the invention by an improved coupling element for inverted T beams as claimed in claim 1.

C L A I M S

1. An inverted T-beam comprising:
 - at at least one of its ends an appendix (2) formed from two portions (8, 10) of different height, a first inner portion (8) extending into a second outer portion (10), said outer portion (10) having the lesser height and being bent to a V-shape comprising two parts (12, 14) forming the two legs of said V-shape, a first part (12) being coplanar with the first portion (8) and the second free part (14) comprising a tooth (16), which is obtained by cutting out and plastically deforming a part of the second part (14), the free end of the tooth (16) substantially facing the end of the first portion (8), and
 - in its central web (4) at least one aperture (18) having a height substantially corresponding to the height of said outer portion (10) of the appendix (2) such that said aperture (18) is suitable for the insertion and for the stable retention of the outer portion (10) of the appendix (2) of another inverted T-beam having an identical appendix (2) by the tooth (16) and the edge of the inner portion (8) of said other inverted T-beam.